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EXAMINER	
CAVALLARI, DANIEL J	
ART UNIT	PAPER NUMBER
2836	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/743,345	WIEDEMUTH ET AL.	
	Examiner	Art Unit	
	Daniel J. Cavallari	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 December 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 December 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

The examiner acknowledges a submission of the amendment filed on 12/22/2006. The amendments to claims 1, 13, 14, 18, 19, 21, 24, 26, 27, 31, 33, 34, 36-40 & 42 and cancellation of claim 2 are accepted.

Response to Arguments

The examiner would like to point out that the applicant has referenced the applicants specification using paragraph numbers however the submitted specification for this case does not use paragraph numbers. The examiner requests any further communications in regard to this case and the specification refer to line and pages numbers, which are provided on the specification.

The previously made objections of claims 18, 23, 37, & 41 have been withdrawn in view of the amendments.

The previously made 112 rejections of claims 13 & 33 have been withdrawn in view of the amendments.

Applicant's arguments, filed 12/22/2006, with respect to the 112 rejection of claims 6-10, 23, 26-30, 41 have been fully considered and are persuasive. The previously made 112 rejections have been withdrawn.

Applicant's arguments, filed 12/22/2006, with respect to claims 23 & 41 and the drawings have been fully considered and are not persuasive.

In regard to the Drawings

The applicant requests withdraw of the objection "...because the "measuring device" and it components are shown in Fig. 3 In particular, paragraphs 0026-0027 describe elements 67-69 are measuring devices that each include a signal matching circuit 70-72, a voltage/current converter 73-75, and an ohmic resistance 76-78, which are elements shown in Fig. 3". The examiner notes that the components are not representative of any particular electrical components in the drawings but rather are simply drawn as squares and the components (measuring device, signal matching circuit) are nominally recited in the specification which fails to disclose the physical structure or exact function of the component.

The drawings also fail to disclose "the measuring signals of the current supply modules are supplied to the control unit in parallel via the data connection".

In regard to Claims 21 & 39

The amendments to the claims are accepted however the claim still lacks clarity therefore it has been rejected under 112, second paragraph which is described below.

Applicant's arguments with respect to claims 1, 3-5, 11, 12, 14-16, 18-20, 23-25, 31, 32, 35, 37, 38, and 41-43 have been considered but are moot in view of the new ground(s) of rejection.

The applicant also argues "...Liu fails to describe or suggest a control unit that has an output that is greater than a maximum output power of individual current supply modules..." and that:

> "...while the combined output power of the power supply boards 212A, 212B is the total power required by the load 104A, the combined output power of the power supply boards 212A, 212B is not greater than the maximum output power of the individual supply board 212A, 212B. Rather, the combined output power of the power supply boards 212A, 212B (that is, the power to the load 104A) is less than or equal to the maximum output power of the individual power supply boards 212A, 212B. Liu explains at paragraph 0050 that the "combined power delivery" is prevented "from exceeding 100% of the power required by the load of 100% of any one power supply's 212A, 214A capacity when the other power supply 212B, 214B is still operating."

The examiner notes that the invention of Liu is directed at a load sharing scheme in which the loads is dived between multiple converters however the "maximum output" of the individual modules is taken to be the maximum amount set by the controller ("...the load controllers 518A, 518B will balance the delivered power equally so that each power supply 212A, 214A, 212B, 214B is delivering approximately 50% of the power required by the load 104A-G", See Paragraph 0050), and not the maximum output possible for the device, as proposed by the applicant.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "...measuring device includes a signal matching circuit for converting a voltage, a voltage/current converter for converting the output voltage of the signal matching circuit into a current, and a resistor for generating a voltage drop" of claims 13 & 33 as well as "the measuring signals of the current supply modules are supplied to the control unit in parallel via the data connection" as recited in claims 14 & 34 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 13 & 33 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 13 & 33 recite "...a resistor for generating a voltage drop" however the specification and drawings fail to teach such a resistor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 3, 4, 5, 11, 12, 14-16, 18-21, 23-25, 31, 32, 34, 35, 37, 38, 39 & 41-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. (US 5,815,388) in view of Liu et al. (US 2003/0111909).

Manley et al. (hereinafter referred to as Manley) teaches a current supply system (212, See Figure 6 & Column 1, Lines 27-43) for a plasma gas discharge application wherein the control unit (212, See Figure 6) output power is configured to supply a plasma load (218) of a plasma gas discharge application. Manley teaches a generic power supply system comprising an AC source (215) and converter (212) (See figure 6 & Column 17, Lines 30-41) but fails to teach a plurality of power supply modules.

In regard to Claim 1, 24, 25, 42, 44, & 45

Liu teaches:

- A plurality of current supply modules (Figure 4 ref# 214, 104) wherein each module include and input terminal via the power supply bus (ref# 402) and an output terminal (output electrical conductor) via the output bus (conductor rail) (ref# 408) (See Figure 4 & Paragraphs 45) wherein each module (214, 212) has a maximum output power and wherein multiple current supply modules are combined to form a supply unit having a maximum output power that is greater than the maximum power of the individual supply module (See Paragraph 50).
- A control unit (Figure 4, ref# 304) connected to the control unit via data connection (Figure 4, ref#404) (See Paragraph 45).
- A common conductor (read on by the arrow, See Figure 4) connecting the current supply modules (ref# 212A, 212B) to a common connecter, read on by the connection between to common power supplies (ie. 212A, 212B) (See Figure 4).

In regard to Claim 3

- The modules (ref# 212, 214) comprising power converters (See Paragraph 46 & Figure 5).

In regard to Claim 4

- Wherein the maximum output power of all the current supply modules is the same [the examiner notes that modules 212A & 212B operate to output the same maximum power] (See Paragraph 46).

In regard to Claim 5 & 43

- A plurality of first current supply systems (ref# 502) electrically combined to form a first control unit having a first maximum power output (ie. 2.0V at 8-15 Amps) and a plurality of second current supply systems (ref# 504) electrically combined to form a second current supply system having a second maximum power output different from the first maximum power output (ie. 3.3 Volts at 40 Amps) (See Paragraph 46).

In regard to Claims 11, 12, 31, & 32

- Each current supply module includes a measuring device, read on by the load sharing controllers (ref# 518A, 518B) and control logic (506) which measures the output power (See Paragraphs 49 & 50 & Figure 5).

In regard to Claims 14 & 34

- The measuring signals of the current supply modules (ref# 502, 504) supplied to the control unit of the control unit (ref# 304) in parallel via the data connection, read on by the parallel connection of the data bus (ref# 404) (See Figure 4 & Paragraph 51).

In regard to Claims 15 & 35

- The current supply system disposed in a switching cabinet, read on by the computer (ref# 102) (See Figure 1 & Paragraph 38).

In regard to Claim 16

- The current supply modules (ref# 502, 504) are current sources (See Paragraph 40).

In regard to Claim 18

- A common conductor (read on by the arrow, See Figure 4) connecting the current supply modules (ref# 212A, 212B) to a common connecter, read on by the connection between to common power supplies (ie. 212A, 212B) (See Figure 4).

In regard to Claims 19, 20, 37 & 38

- The supply units and current supply modules being electrically connected to an input side, read on by the input bus (302) (See Figure 4).

In regard to Claims 23 & 41

- Insulated distribution elements, read on by connectors (ref# 210) for connecting the conductors with the terminals (See Figure 2 & Paragraph 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the power sharing system and interface as taught by Liu with the converter of Manley in which to power the plasma gas discharge application. The

motivation would have been to provide the plasma gas discharge allocation of Liu with a more reliant power supply system (See Liu, Paragraph 35).

In regard to Claims 21 & 39

Incorporating all arguments above, Manley further teaches providing a power supply system (211, See figure 6) with input electrical conductors (235, 237) that are identical in construction to the output electrical conductors (239, 241) but fails to explicitly teach identical conductors for the converter module 212.

However, It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate identical conductors for the converter module as taught for the power supply system 211. The motivation would have been to simplify the construction of the device by wiring the input and output with the same conductor.

Claims 6-10 & 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley in view of Liu et al. in further view of Hill (US 6,362,540)

Manley and Liu teach each current supply module (ref# 502, 504) that includes a receptacle (608) for receiving the control unit (ref# 304) (See figure 6 & Paragraph 65) however fails to teach the control unit (ref# 304) connected only to one module of each control unit and instead teaches the single control unit (ref# 304) directly coupled to each module.

Hill teaches a current supply system in which a single master controller (ref# 34) directly coupled to a single module (ref# 22) of a single control unit (power blocks 1-N) whereby each other module is then transmitted the control signals via a separate data bus (ref# 36). Hill further teaches the controller comprising a computer (See Figure 1 & Column 3, Line 60 to Column 4, Line 10).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a single controller connection (as taught by Hill) to only one of the modules of the control units (as taught by Manley and Liu) in which an external computer is used to directly connect to a single module to control the individual modules. The motivation would have been to provide each unit with an external controller in which a computer is used to provide greater processing capabilities then a single micro-processing computer chip and connecting the controller by directly coupling to a single module instead of a single bus would allow for better and faster troubleshooting if a fault occurred on the data connection in which the separate data line could be fixed as opposed to having to repair the more complex bus as taught by Liu.

Claims 13 & 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. in view of Liu et al. in further view of Li (US 6,166,455).

Incorporating all arguments above of the current supply system taught by Manley and Liu, Liu teaches power monitoring circuitry but fails to explicitly teach a signal matching circuit that converts a voltage into a current via a resistor.

Li teaches a monitoring circuit that uses a resistor (ref # 122) that converts current into a voltage to be monitored by the control circuit (See Column 4, Line 5 to Column 5, Line 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the signal matching circuit taught by Li into the monitoring device of Liu in which to monitor the output power. The motivation would have been to use the current to voltage conversion technique and resistor which is well known in the art in order to adequately and efficiently measure the output perimeters of the power devices.

Claims 17 & 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley et al. in view of Liu et al. in further view of Stanford (US 5,675,480).

Incorporating all arguments above of the current supply system taught by Manley and Liu, Manley fails to teach an interlock circuit.

Stanford teaches a power supply system which uses an interlock circuit in order to disable power modules (See Column 5, Lines 5-18).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the interlock taught by Stanford into the current supply system taught by Manley and Liu in which the current supply modules were provided an interlock circuit. The motivation would have been to provide a means to shut off the power supply modules for safety reasons (See Stanford, Column 6, Lines 5-20).

Claims 22 & 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manley in view of Liu et al. in further view of Young et al (US 7,061,139).

Incorporating all arguments above of the current supply system taught by Manley and Liu, Liu fails to teach the input terminals corresponding to a plurality of phases.

Young teaches a backup power supply system in which three phases are supplied to critical loads (See Figure 3 & Column 5, Lines 15-67).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the backup power supply system taught by Young et al, in which the current supply system taught by Manley and Liu are connected to a single phase of the three phase system thereby the input terminals of Liu correspond to a number of phases of a power line. The motivation would have been to provide the system with backup power.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Cavallari whose telephone number is (571)272-8541. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Cavallari

March 6, 2007

CHAU N. NGUYEN
PRIMARY EXAMINER